

CHAPTER 3 — BICYCLE AND PEDESTRIAN ACCOMMODATIONS

The purpose of this section of the Vinton Area Corridors Plan is to examine existing conditions related to bicycle and pedestrian improvements along the thoroughfares and corridors in the study area.

3.1 PREVIOUS STUDIES & PLANS

A number of relevant studies and plans have been developed in recent years that have included bicycle accommodations in the Vinton area. The information relevant to the study corridors, including specific recommendations, has been summarized in the following sections.

3.1.1 The Bicycle Compatibility Index: A Level of Service Concept

While there is no widely accepted methodology for determining how compatible a roadway is for allowing the efficient operation of bicycle and motor vehicles, the Bicycle Compatibility Index (BCI) and Bicycle Level of Service (BLOS) are emerging national standards.

The United States Department of Transportation produced a document titled, *The Bicycle Compatibility Index: A Level of Service Concept, Implementation Manual*, to demonstrate the application of the BCI to evaluate the capability of specific urban and suburban roadways to accommodate both motorists and bicyclists. The BCI is a methodology allowing practitioners, such as transportation engineers and planners, to evaluate existing facilities and identify areas for improvements.

The BCI can assist in operational evaluation, design, planning, and route selection. Factors that influence the BCI include: number of travel lanes, curb lane travel width, bike lane or shoulder width, land uses, speed limits, traffic volumes, and on-street parking information.

Once the BCI was developed, BLOS criteria were established to evaluate bicyclist perceived safety and comfort with respect to motor vehicle traffic while traveling in a roadway corridor. A BLOS of A indicates that a roadway is comfortable to an average adult bicyclist, while a BLOS of F indicates that a roadway is uncomfortable to the average adult bicyclist.

Applications of the BLOS model include:

- Conducting a benefits comparison among proposed bikeway/roadway cross sections,
- Identifying roadway restriping or reconfiguration opportunities,
- Prioritizing and programming roadway corridors for bicycle improvements, and
- Creating bicycle suitability maps.

Similar to the BCI, factors that influence the BLOS include: number of travel lanes, lane width, traffic volumes, speed limits, bike lane width, shoulder width, on-street parking information, and pavement conditions.

For more information regarding the BCI, please see the FHWA implementation manual in Appendix B.

Table 3.1.1 Bicycle Compatibility Index (BCI)

Level of Service (LOS)	BCI Range	Compatibility Level
A	≤ 1.50	Extremely High
B	1.51 - 2.30	Very High
C	2.31 - 3.40	Moderately High
D	3.41 - 4.40	Moderately Low
E	4.41 - 5.30	Very Low
F	> 5.30	Extremely Low

Source: <http://safety.fhwa.dot.gov/tools/docs/bci.pdf>

3.1.2 Regional Bicycle Suitability Study

The *Regional Bicycle Suitability Study*, completed by the Roanoke Valley Area Metropolitan Planning Organization (RVAMPO) in 2003, focused on describing existing conditions in regards to the suitability for bicycle ridership on several regional corridors. Several of the corridors from the Vinton Area Corridors Plan were included in this study including Virginia Avenue, Hardy Road (Route 634), Walnut Avenue, and Washington Avenue. A map found in Appendix A shows the Bicycle Level of Service Grades for the study corridors in the Vinton Area Corridors Plan, as measured through the regional study.

Hardy Road demonstrated the highest BLOS Grade of C, moderately high, due largely to the presence of bicycle lane facilities on the portion of this road stretching from its intersection with Bypass Road to the vicinity of the eastern Town limits. Walnut Avenue from the western

Town limits to 1st Street was measured and found to have a BLOS Grade of D, moderately low, due to lower speeds and wide shoulders. The remaining Vinton area study corridors evaluated in the study were given the BLOS grade of E or F, including Washington Avenue from South Pollard Street to the eastern Town limits and Virginia Avenue from the western Town limits to Bypass Road.

The methodology developed through the *Regional Bicycle Suitability Study* has been employed to measure the bicycle suitability grade for the remaining corridors in the study area that were not included in the initial study effort. The summary of the methodology and the results have been included in the section describing current conditions for bicycle and pedestrian travel.

3.1.3 Bikeway Plan for the Roanoke Valley Area Metropolitan Planning Organization

The 2005 Regional Bikeway Plan for RVAMPO was prepared “to facilitate development of a regional transportation network that accommodates and encourages bicycling as an alternative mode of travel and as a popular form of recreation in the MPO study area” (Bikeway Plan for the Roanoke Valley Area MPO, pg. 1). The intent of this plan is to provide greater connectivity between activity centers and cultural resources in and around the MPO study area, including greenways, commercial centers, downtown areas, employment concentrations, educational institutions and transit facilities. This plan also encourages inter-jurisdictional connectivity between localities.

The 2005 Regional Bikeway Plan recommended the following areas within the Vinton Area Corridors Plan as priority corridors for bicycle accommodations:

- Hardy Road (Route 634) in Roanoke County,
- Mountain View Road from Washington Avenue to the northern Town limits,
- South Pollard Street from Gus Nicks Boulevard to Virginia Avenue,
- Virginia Avenue from South Pollard Street to the western Town line/City of Roanoke, and
- Walnut Avenue from Lee Avenue to Wise Avenue in the City of Roanoke.

The following areas within the Vinton Area Corridors Plan were listed in the vision list of corridors for bicycle accommodations:

- Feather Road from Washington Avenue (Route 24) to Hardy Road,
- Washington Avenue (Route 24) from the Vinton Town Line to the Blue Ridge Parkway,
- Gus Nicks Boulevard/Washington Avenue, in its entirety, within the Town limits, and
- Third Street from Virginia Avenue to Hardy Road by way of Wyndham Drive and Niagara Road.

Since the completion of the 2005 Bikeway Plan, dedicated bicycle lanes have been added to sections of Hardy and Mountain View Roads which connect to the northern and southern termini of the Wolf Creek Greenway. The bicycle lane along a 0.5 mile segment of Hardy Road in the Town of Vinton was the first bicycle lane in the Roanoke Valley.

Roadway geometry and traffic volumes along Washington Avenue contributed greatly to the lower compatibility score along that corridor. The lack of a paved shoulder, curb lanes of only average width, high traffic volumes, and higher speed limits (particularly east of Feather Road) make the suitability for bicycle traffic very low along Washington Avenue.



Image 3.1.3 The bridge over Wolf Creek along Washington Avenue is too narrow to accommodate pedestrian or bicycle traffic.

Interesting contrasts can be drawn along certain roadways where segments had higher levels of compatibility. For instance, the northern portion of South Pollard Street from Gus Nicks Boulevard to Cleveland Avenue received a score of ‘D’ while the southern portion of South Pollard

Street between Cleveland and Virginia Avenues had the higher score of ‘C.’ The main reason for the lower score along the northern segment is the presence and heavier utilization of on street parking along those portions of the street leaving little room for a bicyclist to maneuver.

Hardy Road (Route 634) provides another interesting contrast in bicycle accommodations. The presence of a striped bike lane, roughly four (4) feet in width, between Bypass Road and the eastern limits of the Town of Vinton, is the greatest differential factor between the remaining segment of Hardy Road located in Roanoke County. The presence of the bike lane is mostly responsible for the western segment’s higher score of ‘C’ while the eastern segment in Roanoke County received a score of ‘E.’ The bike lane alone raised the western segment’s score two entire letters.

The lowest scores for bicycle accommodations can be found along Washington Avenue, Gus Nicks Boulevard, and Virginia Avenue where traffic speeds and volumes are the highest. Restriping these roads to accommodate bike lane facilities could raise scores, but the roadways should be evaluated for feasibility (i.e. sufficient pavement width). Lowering speed limits and increasing speed enforcement may also contribute significantly to the bicycle-friendliness of these corridors. Additionally, staff noted that Washington Avenue has been identified as a priority corridor for bike path installation; however, the bridge over Wolf Creek is too narrow to accommodate a bicycle lane.

The map in Appendix A shows the proposed ‘Priority’ bike lanes for the study area including Bypass Road, Gus Nicks Boulevard and Washington Avenue (Route 24). Restriping to provide bike lanes on these facilities will likely increase the Bicycle Compatibility Index Score greatly.

3.1.4 Pedestrian Access to Commercial Centers: Connecting Residential and Commercial Land Uses

In 2006, RVAMPO prepared a report, *Pedestrian Access to Commercial Centers*, which examined a specific portion of the Vinton Corridors Project study area for potential pedestrian improvements. The study included Virginia Avenue from Niagara Road to the Route 24 Bypass Road intersection. The study noted the lack of crosswalks at the intersections of Hardy Road and Niagara Road, Hardy Road and Vinyard Road, Hardy Road at Lake Drive Plaza,

Hardy Road and Bedford Road, Hardy Road and Clearview Drive, and finally at Hardy Road and Route 24 Bypass Road. The study recommended that crosswalks be installed at these intersections. The study recommends implementation through a number of means including the incorporation of needed pedestrian facilities into construction, reconstruction, and road improvement projects; by developers as a part of the approval process; minor highway improvement projects; restriping existing facilities for bike lanes; and construction of stand-alone walkway and bikeway projects in the public right-of-ways.

3.1.5 The William Byrd Middle School Safe Routes to School Travel Plan

In 2008, *The William Byrd Middle School Safe Routes to School Travel Plan* identified a number of issues regarding pedestrian transportation and accommodations to bicycle and pedestrian travel around William Byrd Middle School which is located along Washington Avenue in Roanoke County. A survey of parents identified distance from the school and safety concerns as the two highest-ranked reasons as to why their children do not currently bike or walk to school. A number of other issues were identified including: insufficient crosswalks and curb cuts, the lack of a crosswalk and pedestrian crossing signs on Washington Avenue at the school entrance, inadequate signage, kiosks, and maps along the greenway, no formal connection between the greenway and the school campus, limited access between neighborhoods and the greenway, a lack of complete ADA accessibility, and a lack of bicycle parking at the school campus.

The plan identified the following strategies related to pedestrian and bicycle infrastructure that would improve the bicycle and pedestrian accessibility of the school campus and the surrounding transportation network:

- Construction of a 500-foot multiuse path to connect William Byrd Middle School and the Wolf Creek Greenway;
- Installation of lighting at greenway road crossings and other key locations;
- Installation of greenway informational signage and kiosks at Goode Park, Stonebridge Park, and other greenway access locations;
- Installation of curb cuts and ramps at locations where the greenway crosses Hardy

Road, Spring Grove Drive, and Tulip Lane;
and

- Installation of crosswalks and/or traffic control devices on Hardy Road, Washington Avenue, Spring Grove Drive, and Tulip Lane.

The 500-foot multiuse path would provide students with a safe alternative route to school. This mode of travel would also encourage healthy lifestyles by offering a mode of travel that would allow the students to walk and bicycle to school. Rather than crossing Washington Avenue, students could utilize the existing Wolf Creek Greenway culvert crossing under Washington Avenue to ride or walk through Goode Park and access the school campus via the proposed 500-foot multi-use path.

3.1.6 The Roanoke Valley Conceptual Greenway Plan (1995)

In December 1994, regional greenway efforts began when elected officials from the City of Roanoke, Roanoke County, the City of Salem and the Town of Vinton were appointed to serve on the Roanoke Valley Greenways/Open Space Steering Committee; which staff support was provided from the Roanoke Valley Alleghany Regional Commission. This committee hired a consultant to develop a Conceptual Greenway Plan for the Roanoke Valley that was completed in December 1995.

In 1997, the four local governments established the Roanoke Valley Greenway Commission, an advisory body, with the signing of an Intergovernmental Agreement. The Commission's role is to facilitate coordinated planning, development, and maintenance of the greenway network. Around this time, a group of citizens established Pathfinders for Greenway, Inc. was set up as a non-profit, volunteer organization to assist with greenway education and promotion, volunteer coordination for construction and maintenance, and fundraising. As a result of the strong greenway initiatives in the Roanoke Valley, the Western Virginia Land Trust made greenways a top priority in their land preservation efforts.

3.1.7 Update to the Roanoke Valley Conceptual Greenway Plan (2007)

In 2007, a substantial update to the 1995 *Roanoke Valley Conceptual Greenway Plan* was conducted. The primary goals of the update were to prioritize and update the

greenway routes included in the 1995 plan, to provide an organizational assessment to examine the roles and responsibilities of various partners involved in the greenway process, and to describe accomplishments in the greenway initiatives. From this update, fifty-one (51) potential greenways were identified along various courses throughout the valley. The prioritization of when each of these greenways will be implemented is based on public input, the Greenway Steering Committee and the localities within the valley. The following is a description of the priority rankings:

- **Priority 1** - Only applies to the Roanoke River Greenway;
- **Priority 2** - Important regional projects, already underway, which could be finished in 5-10 years;
- **Priority 3** - Priorities within specific localities which work to enhance neighborhood values, economic development and public health. Most of these have had some preliminary work completed; and
- **Priority 4** - Greenway projects that are addressed as opportunity and resources arise on a case-by-case basis.



Image 3.1.7 A pedestrian enjoys a stroll along the Wolf Creek Greenway near Washington Avenue.

The Tinker Creek and Wolf Creek Greenways, which intersect the boundaries of the Vinton Area Corridors Plan, are identified as Priority 2 Greenways. The Glade Creek Greenway, which is projected to cross Walnut Avenue just west of 5th Street and Gus Nicks Boulevard just west of the Town boundary in the City of Roanoke, was listed as a Priority 3. Additional greenways that are

proposed within the Vinton area are the Gladetown Trail and improvements to the Birding and Wildlife Trail. These proposed trails do not intersect the study corridors and are identified as Priority 3 and 4 greenways, respectively. A map of the greenways is located in Appendix A.

3.2 EXISTING BICYCLE CONDITIONS

During March and April 2009, staff from the Roanoke Valley–Alleghany Regional Commission (RVARC) sought to document existing conditions along the study area’s network of sidewalks, bike paths, trails, and other bicycle and pedestrian accommodations.

Staff determined that the best method for ascertaining the existing conditions for bicycle accommodations along the Vinton area study corridors would be to build on the BCI results. RVAMPO had compiled BCI scores for approximately 75% of the corridors being studied in the Plan. RVARC staff took additional measurements to complete the BCI analysis for the entire study area.

As mentioned in Section 3.1.1, the BCI and associated model was developed by the United States Department of Transportation as a part of its *National Bicycling and Walking Study* in 1998. The goal of the project was to develop a universal methodology, accepted by alternative transportation coordinators, traffic engineers, and transportation planners, that could determine how compatible a roadway is for allowing efficient operation of both bicycles and motor vehicles.

The full methodology utilized to score the corridors can be read in the RVAMPO’s *Regional Bicycle Suitability Study* (2003). For the purposes of evaluating the bicycle accommodations along the remaining Vinton study corridors, staff utilized the methodology and scoring sheets developed in the RVAMPO study to determine BCI scores for the remaining corridors not included in the 2003 study.

A map which can be found in Appendix A was developed to illustrate the score of each facility. Two roadway segments had the highest BCI scores of any in the corridor system. The first segment, located along South Pollard Street between Cleveland Avenue and Virginia Avenue, as well as the second segment, located along Hardy Road (Route 634) between Bypass Road and Greenway

Landing, received BCI scores of ‘C’ which correspond to a moderately high level of compatibility.

The entire sections of Walnut Avenue, Lee Avenue, and South Pollard Street between Gus Nicks Boulevard and Cleveland Avenue received a ‘D’ for moderately low compatibility. Virginia Avenue from South Pollard Street to Bypass Road, the entire length of Bypass Road, and Hardy Road (Route 634) from Greenway Landing to the Bedford County line received an ‘E’ for very low compatibility. Virginia Avenue from the western Town boundary to South Pollard Street and Washington Avenue from South Pollard Street to the Bedford County line received an ‘F’ for extremely low levels of compatibility.

3.3 EXISTING PEDESTRIAN CONDITIONS

3.3.1 Crosswalks

The inventory of existing conditions also included staff recordation of crosswalk locations along the study corridors. Crosswalk locations were recorded at the intersections of Gus Nicks Boulevard and South Pollard Street, at the 200 block of East Washington Avenue, at the 600 block of East Washington Avenue, at the intersection of Washington Avenue/Mountain View Road, at the intersection of Washington Avenue/Bypass Road, and at the intersection of Lee Avenue/South Pollard Street.



Image 3.3.1 The intersection of Lee and South Pollard Streets is marked with pavers.

The crosswalks at Lee Avenue and South Pollard Street, the 200 block of East Washington Avenue, and the 600 block of East Washington Avenue are the only crosswalks

with pavement markings. The crosswalks at mid-block on Washington Avenue are striped on the pavement and the crosswalk at Lee Avenue and South Pollard Street are marked by pavers. Of the two mid-block, striped crossings, it should be noted that only the crossing at the 600 block of East Washington Avenue has a pedestrian crossing sign warning the relatively fast-moving traffic of the crosswalk ahead.

The remainders of the crosswalk locations consist of apparent pedestrian coordinated traffic signalization at intersections; however, staff could not determine any actual effect of pressing the buttons at the crossings, as pressing the button to cross seemed to have no impact on traffic signal timing.

It should be noted that there seemed to be remarkably few crosswalk locations in the study area overall. In particular, the Route 24 corridor has no apparent crosswalks or pedestrian signalization. High traffic volumes along this roadway coupled with the lack of sidewalks along portions of the corridor discourage pedestrian activity.

3.3.2 Sidewalks

Staff compiled an inventory of sidewalks along the corridor along with information on Americans with Disabilities Act (ADA) ramps, sidewalk conditions, and any obstructions and/or issues with maintenance, sidewalk code enforcement encountered while performing the field work.

The full sidewalk inventory can be found in Appendix B. The study corridors not currently served with sidewalks include portions of Walnut Avenue, portions of

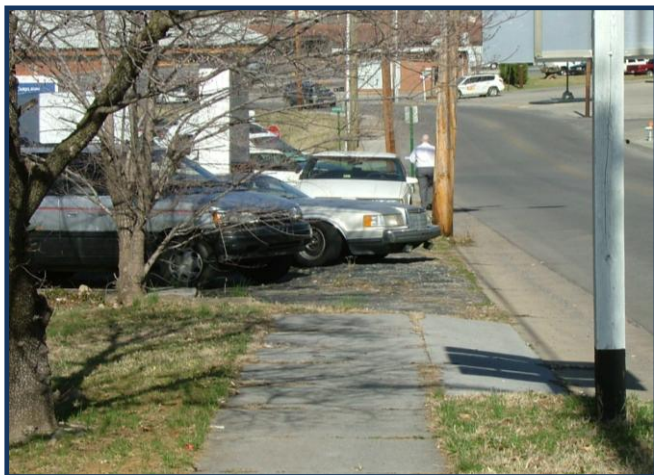


Image 3.3.2 Pedestrians are forced to walk in the gutter along South Pollard Street which needs significant improvements.

Washington Avenue within the Town limits, the entire section of Washington Avenue (Route 24) in Roanoke County, Bypass Road, Hardy Road (Rt. 634) in Roanoke County, and Virginia Avenue/Hardy Road between 200 feet east of South Pollard Street and Niagara Road. A number of segments lack ramps for full ADA accessibility including notably several segments on Walnut Avenue, the southernmost segments of South Pollard Street (between Jefferson Avenue and Virginia Avenue), Washington Avenue between North Preston Road and Marshall Avenue, and Virginia Avenue between the western Town line and the terminus of a sidewalk roughly 200 feet east of South Pollard Street.

Staff recorded sidewalk conditions utilizing a condition grading system whereas sidewalks in excellent condition or like new condition were graded as 'A', sidewalks in good condition were graded as 'B', sidewalks that were in serviceable condition but appeared to need spot improvements were graded as 'C.'

Sidewalks were found in mostly good to excellent overall condition with the exception of a few problem areas. The sidewalk segment on South Pollard Street between Cedar Avenue and Virginia Avenue was given the lowest condition rating. This segment of sidewalk has significant damage with gaps in the sidewalk along a portion of property where pedestrians must walk in the gutter along the street due to the obstruction of vehicles and personal property.

Along the same segment of sidewalk, between Cedar Avenue and Virginia Avenue, it was noted that one curb cut located at 537 South Pollard was too large for the entrance of the property. The grade drops off significantly on the southern side of the curb cut. Numerous scrape marks and other evidence at the scene indicated that several vehicles have been damaged by improperly aligned curb cut.

In the opposite travel direction along South Pollard Street from Jefferson Avenue to Virginia Avenue (in the northbound direction of travel), a retaining wall failure on private property has contributed to the encroachment of earth and fill material onto the sidewalk.

Virginia Avenue lacks sidewalk from 200 feet east of South Pollard Street to Niagara Road (with the exception of one strip of sidewalk along the frontage of one eating establishment). A narrow foot path has been worn on what appears to be public right-of-way along the frontage

of several commercial establishments on the eastbound side of Hardy Road between 705 Hardy Road and Niagara Road, demonstrating significant pedestrian traffic along this portion of Virginia Avenue.

The Town of Vinton's Public Works Department is responsible for the maintenance and repair of existing sidewalks within the Town limits. In established neighborhoods, the property owners shall pay one-half of the cost of the installation of new curbs, gutters and sidewalks; the Town will pay the remaining one-half if funds are available.

Adjoining property owners along at least a block must mutually agree to the installation and cost sharing. In new residential developments, the property owners/developers are responsible for all costs associated with the installation of curbs, gutters, and sidewalks.



Image 3.3.3 A worn pedestrian path along Virginia Avenue indicates the need for sidewalks.